

# A conceptual framework to assess the effectiveness of HIV prevention

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## Aim

How can we compare rationally the effectiveness of the many different approaches to HIV prevention? Confusion reigns when the proponents of different interventions address the issue at different levels of implementation and are also unclear about the relative weight of values and evidence in reaching their decision. This paper defines and delineates the successive levels of analysis of effectiveness, and proposes a conceptual framework to clarify debate.

| Levels of effectiveness  | Key variables for each level  |
|--|---|
| <p><b>(1) Theoretical effectiveness (ThE) :</b><br/>Interaction between the agent, the “ideal intervention” and “ideal users”</p>                                      | <ul style="list-style-type: none"> <li>▪ Infectious Agent: Biological Characteristics</li> <li>▪ Intervention: design, quality assurance</li> <li>➤ At this level intervention conducted as intended under optimal circumstances</li> <li>➤ At this level users conceived as 100% adherent &amp; invariable</li> </ul>  |
| <p><b>(2) Use-effectiveness (UseE) :</b><br/>Interaction between the "average" intervention and the "average" user</p>   | <ul style="list-style-type: none"> <li>▪ <b>Variables affecting “ThE” and:</b></li> <li>▪ Intervention: at this level assumed available and used but with variability according to local circumstances</li> <li>▪ Users: at this level, individual physiological, psychological and socio-economic characteristics taken into account</li> </ul> <p>Effectiveness impacted by "acceptability in use" of the intervention: a function of the interaction between the characteristics of the intervention and those of the user</p>   |
| <p><b>(3) Population Effectiveness (PopUseE) :</b><br/>Interaction between the intervention and users in a given socio-economic political and geographical context</p> | <ul style="list-style-type: none"> <li>▪ <b>Variables affecting “ThE &amp; UseE” and:</b></li> <li>▪ Intervention: Characteristics of strategies for promotion / roll out</li> <li>▪ Users: Conceived as potential users of intervention within a given socio-economic, political and geographical context. Key variables for users at this level are not individual but wider environmental factors</li> <li>▪ Effectiveness impacted by <i>a priori</i> acceptability of the intervention not only to potential users but also to the decision-makers and gatekeepers in a given context</li> </ul> |

## Method and Application

Three levels are defined relating to 3 successive levels of intervention implementation: theoretical effectiveness (ThE), use-effectiveness (UseE) and population use-effectiveness (PopUseE). Each level is associated with specific forms of scientific enquiry and associated research questions: basic and clinical sciences with ThE; clinical and social sciences with UseE; epidemiology and social, economic and political sciences with PopUseE. Similarly, the focus of investigation moves from biological organisms, to the characteristics of individuals, and finally takes as perspective populations and societies as a whole.

Examples: abstinence and faithfulness, as proposed in the ABC strategy, have relatively high theoretical effectiveness but low effectiveness at subsequent levels of implementation owing to low acceptability in use. Circumcision may have relatively low theoretical effectiveness, but presents no problems of adherence once adopted i.e. has high use-effectiveness. At population level, however, its effectiveness may be impacted by cultural acceptance and economic constraints on roll out.

The framework may be applied to analyse issues on any approach. Example: regarding consideration of HIV treatment as a means of prevention, variables at each level would concern: ThE: achieving adequate viral suppression and non-transmission to partners; UseE: facility and degree of adherence to treatment and medical follow-up; PopUseE: perceived validity of strategy, feasibility of achieving adequate population coverage.

## Discussion

Use of this framework clarifies the questions that need to be addressed at each level of implementation. It makes apparent the interconnectedness and complementary nature of research from the different scientific disciplines. The proposed framework could bring greater rationality to the prevention effectiveness debate and facilitate communication between stakeholders, thus improving the effectiveness of HIV prevention overall.